

1
2
3
4
5
6
7 REGENTS OF THE UNIVERSITY OF
MINNESOTA,
8 Plaintiff,
9 v.
10 LSI CORPORATION, et al.,
11 Defendants.

Case No. 18-cv-00821-EJD

**ORDER REGARDING MOTIONS FOR
SUMMARY JUDGMENT**

Re: ECF No. 310, 315

REDACTED PUBLIC VERSION

12
13 Plaintiff, Regents of the University of Minnesota (“UMN”), moves for summary judgment
14 on Defendants LSI Corporation and Avago Technologies U.S. Inc.’s (together, “LSI”) claims that:
15 (i) Claims 14 and 17 (the “Asserted Claims”) of U.S. Patent No. 5,859,601 (the “’601 Patent”) are
16 invalid on the grounds of an alleged prior art invention by Dr. Emina Soljanin pursuant to (pre-
17 AIA) 35 U.S.C. § 102(g); and (ii) the ’601 Patent is unenforceable on the grounds of alleged
18 inequitable conduct. ECF No. 310. LSI moves for summary judgment of noninfringement, no
19 damages, and invalidity of the ’601 Patent under 35 U.S.C. § 112. ECF No. 315.¹

20 For the reasons explained below, UMN’s Motion is GRANTED, and LSI’s Motion is
21 GRANTED IN PART and DENIED IN PART.

22 **I. BACKGROUND**

23 **A. The Parties**

24 UMN is a research university in Minnesota that supports and facilitates a wide range of

25 _____
26 ¹ The parties did not comply with this Court’s Standing Order on the requirements for cross-
motions for summary judgment. See Standing Order for Civil Cases, Section V(C) (requiring four
27 briefs total for cross-motions for summary judgment). The Court expects the parties to adhere to
this Court’s Standing Orders going forward.

1 research. UMN contends that Jaekyun Moon, a former University professor, and Barrett J.
 2 Brickner, a Ph.D. student, developed the invention described in the '601 Patent during their tenure
 3 at the University and assigned the '601 Patent to the University.

4 LSI designs, develops, and supplies integrated circuits used in data storage, such as hard
 5 disc drive (“HDD”) chips.

6 **B. Procedural History**

7 UMN filed the complaint in this matter originally in the District of Minnesota on August
 8 25, 2016, alleging that LSI used the methods claimed in claims 13, 14, and 17 of the '601 Patent.
 9 The case was transferred to this District, and on March 10, 2017, LSI filed a petition for *inter*
 10 *partes* review (“IPR”) of certain claims of the '601 Patent, including claims 13, 14, and 17. Joint
 11 Statement of Undisputed Facts Regarding Defendants’ Motion for Summary Judgment (“JSUF
 12 II”) ¶ 13. The Court stayed the action pending resolution of the IPR (ECF Nos. 191, 211), and on
 13 April 14, 2021, the PTAB found that claim 13 of the '601 Patent was unpatentable, but that claims
 14 14 and 17, which depend from claim 13, were not unpatentable. JSUF II ¶ 21. After the Federal
 15 Circuit affirmed the PTAB’s final written decision (JSUF II ¶ 22), the Court lifted the stay on
 16 October 7, 2022. ECF No. 218.

17 The Court held a *Markman* hearing and construed the following terms:

Claim term	Court’s Construction
producing sequences of n-bit codewords	producing, as output from the received binary datawords, n-bit codewords that are combined into a sequence
encoded waveform	the recorded waveform
transition	plain and ordinary meaning; a transition can be logically represented in multiple ways depending on the recording format used—a change from 0 to 1 or from 1 to 0 when using NRZ format, for example, or a 1 when using NRZI format

25 Claim Construction Order 14, ECF No. 263.

1 C. The '601 Patent

2 The '601 Patent generally pertains to digital storage systems. Such systems work by
3 recording data as 1's and 0's, though the formats with which they record that data can vary. The
4 '601 Patent discusses two such recording formats. First, a storage device can use the Non-Return-
5 to-Zero ("NRZ") recording format. '601 Patent at col. 1:24–27. In NRZ recording, a 1 is
6 represented by positive magnetization within the storage device, and a 0 is represented by negative
7 magnetization within the storage device. '601 Patent at col. 1:24–27. Second, a storage device
8 can use the Non-Return-to-Zero-Inversion ("NRZI") recording format. '601 Patent at col. 1:29–
9 32. In this format, a 1 is represented by a magnetic transition (*i.e.*, from positive to negative), and
10 a 0 is represented by a non-transition. '601 Patent at col. 1:29–32.

11 To achieve these constraints, the '601 Patent teaches the encoding of "datawords" (pieces
12 of input data) into "codewords" (corresponding pieces of output data). '601 Patent at col. 10:50–
13 51. The codewords are chosen such that, when the codewords are joined together in a string, the
14 (j;k) constraints are satisfied. This encoding can be performed by using either "block" codes or
15 "state-dependent" codes. Block codes are those where each dataword is mapped to a unique
16 codeword. *Id.* at col. 5:66–67. By contrast, state-dependent codes assign codewords to datawords
17 based on the previously used codeword, or "state," of the system. *See id.* at col. 5:50–53, 61–66.

18 UMN asserts infringement of only claims 14 and 17 of the '601 Patent. But because both
19 claims depend from claim 13, the Court reproduces all three claims below:

20 **13.** A method for encoding m-bit binary datawords into n-bit binary
21 codewords in a recorded waveform, where m and n are preselected
22 positive integers such that n is greater than m, comprising the steps
23 of:
24 receiving binary datawords; and
25 producing sequences of n-bit codewords;
26 imposing a pair of constraints (j;k) on the encoded waveform;
27 generating no more than j consecutive transitions of said sequence
28 in the recorded waveform such that $j \geq 2$; and
 generating no more than k consecutive sample periods of said
 sequences without a transition in the recorded waveform.

29 **14.** The method as in claim 13 wherein the consecutive transition limit is
30 defined by the equation $2 \leq j < 10$.

1 **17.** The method as in claim 14 wherein the binary Sequences produced by
2 combining codewords have no more than one of consecutive transitions
3 from 0 to 1 and from 1 to 0 and no more than one of k+1 consecutive O's
recording format.

4 UMN alleges that LSI infringes in three ways: (1) LSI directly infringes when it uses the
5 Asserted Claims in the United States (35 U.S.C. § 271(a)); (2) LSI induces infringement when
6 LSI's customers (and their customers) use the Asserted Claims in the United States pursuant to
7 LSI's directions (35 U.S.C. § 271(b)); and (3) LSI engages in contributory infringement by selling
8 systems on chips (SoCs) that LSI's customers and their customers use to practice the Asserted
9 Claims (35 U.S.C. § 271(c)).

10 UMN's experts defined the term "Accused Products" to encompass both "Accused
11 Simulators" and "Accused Read Channels." The Accused Read Channels are read channels that
12 are part of integrated circuits used and sold by LSI. McLaughlin Rep. ¶ 4.2, ECF No. 311-6. The
13 Accused Read Channels include a selectable operating mode, namely [REDACTED] code mode,
14 which can be set via the [REDACTED] of the Accused Read Channels. *Id.* When
15 the Accused Read Channels are operated to write binary data in this normal operating mode of the
16 Accused Read Channels, UMN alleges the Accused Read Channels perform all of the steps of the
17 Asserted Claims. *Id.*

18 The term "Accused Simulators" refers to software and hardware tools and systems, used
19 by LSI and its customers (*i.e.*, HDD manufacturers), for reading MTR-encoded data recorded to a
20 recording medium (*e.g.*, a disk of an HDD), particularly recorded data encoded using LSI's [REDACTED]
21 [REDACTED] | *Id.* ¶ 4.3. UMN alleges that LSI and its customers practice the Asserted
22 Claims through the Accused Simulators by using [REDACTED] from actual recording media that
23 have data written thereon that is encoded via [REDACTED]. *Id.*

24 In particular, UMN asserts LSI and its customers infringe during the "extensive design,
25 development, and sales cycle," in which they engage for every generation of SoCs sold. JSUF II
26 ¶ 13.

II. LEGAL STANDARD**A. Motion for Summary Judgment**

A court must grant summary judgment “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). The moving party bears the burden of demonstrating the absence of any genuine issue of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Once the movant has made this showing, the burden then shifts to the party opposing summary judgment to identify “specific facts showing there is a genuine issue for trial.” *Id.* The party opposing summary judgment must then present affirmative evidence from which a jury could return a verdict in that party’s favor. *Anderson v. Liberty Lobby*, 477 U.S. 242, 257 (1986).

On summary judgment, the court draws all reasonable factual inferences in favor of the non-movant. *Id.* at 255. In deciding a motion for summary judgment, “[c]redibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge.” *Id.* However, conclusory and speculative testimony does not raise genuine issues of fact and is insufficient to defeat summary judgment. *See Thornhill Publ’g Co., Inc. v. GTE Corp.*, 594 F.2d 730, 738 (9th Cir. 1979).

If the burden of persuasion at trial would be on the non-moving party, then the moving party may satisfy its burden of production by pointing to an absence of evidence supporting the non-moving party’s case, after which the non-movant must come forward with specific facts to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986).

III. UMN’S MOTION FOR SUMMARY JUDGMENT

UMN moves for summary judgment on two issues. First, to the extent that LSI’s counterclaim for declaratory judgment of invalidity is premised on anticipation or obviousness arguments, UMN asks for summary judgment that the remaining patent claims in this case are not invalid as anticipated or obvious. Second, UMN seeks summary judgment in its favor on the entirety of LSI’s counterclaim for declaratory judgment of unenforceability due to inequitable

1 conduct. The Court finds that UMN is entitled to summary judgment on both issues.

2 **A. Invalidity**

3 Because the parties have already litigated anticipation and obviousness through IPR, only
4 one such issue remains in this case. LSI asserts that Dr. Emina Soljanin independently invented
5 the subject matter of claims 14 and 17 such that, under pre-AIA § 102(g), Dr. Soljanin's invention
6 is prior art that invalidates those claims. However, UMN has shown that there is insufficient
7 evidence in the record to demonstrate that Dr. Soljanin ever reduced her purported invention to
8 practice, as required by § 102(g). And in any case, UMN has established that IPR estoppel under
9 § 315(e)(2) bars LSI from now raising Dr. Soljanin's supposed invention as a ground for
10 invalidity.

11 **1. Reduction to Practice**

12 The pre-AIA § 102(g) allows a claimed invention to serve as prior art potentially
13 invalidating a patent "if the claimed invention was made in this country by another inventor before
14 the patent's priority date." *Solvay S.A. v. Honeywell Int'l Inc.*, 742 F.3d 998, 1000 (Fed. Cir.
15 2014). "Making the invention requires conception and reduction to practice." *Id.* In turn,
16 reduction to practice is established in relevant part "by evidence of [] actual performance."
17 *Goeddel v. Sugano*, 617 F.3d 1350, 1353 (Fed. Cir. 2010) (citing *Cooper v. Goldfarb*, 154 F.3d
18 1321, 1327 (Fed. Cir. 1998)); *see also Reese v. Hurst*, 661 F.2d 1222, 1227 (C.C.P.A. 1981) ("[A]
19 process is reduced to practice when it is successfully performed.") (citation omitted).

20 Here, LSI has produced some evidence of reduction to practice in the form of
21 Dr. Soljanin's testimony. Soljanin Dep. at 66:7–76:5, ECF No. 335-5. That testimony is
22 equivocal at best. But construing the evidence in the light most favorable to LSI, a jury could
23 interpret Dr. Soljanin's testimony as asserting that she did actually implement her purported
24 invention. The problem is that this is not enough to meet LSI's burden. A party cannot invalidate
25 a patent by relying on only a single witness's testimony to meet its burden; corroboration is

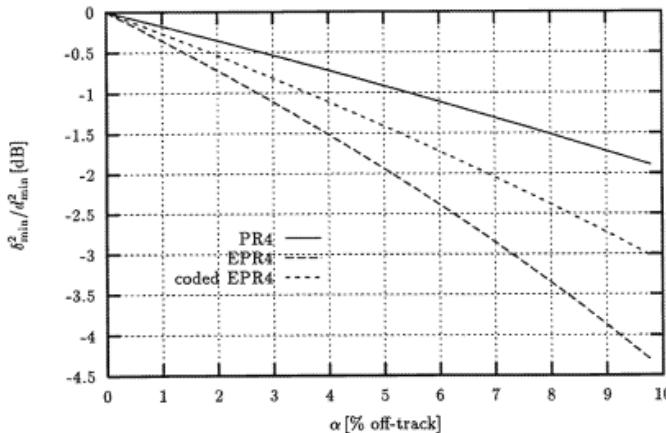
1 required. *Finnigan Corp. v. ITC*, 180 F.3d 1354, 1369 (Fed. Cir. 1999).²

2 LSI's only other supposed evidence of reduction to practice³ is a 1995 paper that
3 Dr. Soljanin published describing her purported invention. '95 Paper, ECF No. 336-2. However,
4 the '95 Paper is not corroborating evidence. LSI points to a sentence in the paper that "an
5 improvement in the off-track performance of [the EPR4] channel can be accomplished by limiting
6 the length of subsequences of alternating symbols to four." *Id.* at 99. According to LSI, this
7 shows that Dr. Soljanin's purported invention "is suitable for its intended purpose" and therefore
8 that the invention was reduced to practice. Opp. to UMN Mot. 12 (quoting *Mahurkar v. C.R.
9 Bard, Inc.*, 79 F.3d 1572, 1578 (Fed. Cir. 1996)). Demonstrating suitability is just one part of
10 reduction to practice, though. Reduction to practice requires an inventor to (1) determine that an
11 invention "would work for its intended purpose" *by means of* (2) "construct[ing] an embodiment
12 or perform[ing] a process." *Cooper*, 154 F.3d at 1327. In other words, the inventor must actually
13 implement her invention—she cannot conclude on a solely theoretical basis that her invention will
14 do what she thinks it will do. And the cited sentence in the '95 Paper does not suggest that
15 Dr. Soljanin ever went beyond the theoretical.

16
17
18
19
20
21
22
23 ² LSI attempts to argue that, under *Thomson S.A. v. Quixote Corp.*, 166 F.3d 1172 (Fed. Cir.
24 1999), corroboration is not required when the witness is disinterested. But *Finnigan* expressly
25 addressed *Thomson*, explaining that *Thomson* was a narrow holding and did not displace the rule
that "corroboration is required of any witness whose testimony alone is asserted to invalidate a
patent, *regardless of his or her level of interest.*" *Finnigan*, 180 F.3d at 1368–69 (Fed. Cir. 1999)
(emphasis added).

26 ³ LSI also cites to one of its expert reports, but that expert merely parrots Dr. Soljanin's testimony.
27 Opp. to UMN Mot. 12, ECF No. 336 (citing Koralek Rep. ¶ 105, ECF No. 335-4). The cited
paragraph of the report is therefore not separate, corroborating evidence.

1 Apart from that sentence, LSI also emphasizes that the '95 Paper claims to have used
 2 "simulation results obtained by Sayiner," and then argues that those simulation results are
 3 reflected in Figure 1 (reproduced below). '95 Paper 100–101 & fig.1.



12 Figure 1: Off-track performance of PR4 and EPR4 channels.
 13

This argument is mere speculation that cannot establish any genuine dispute of material fact. *Javaheri v. JPMorgan Chase Bank N.A.*, 561 F. App'x 611, 612 (9th Cir. 2014). There is no indication in the '95 Paper as to what the "simulation results obtained by Sayiner" actually are and how they are (or are not) connected to Dr. Soljanin's purported invention. All that is known is that these simulation results were somehow used in conjunction with "[t]he analytical results of [the '95 Paper]." '95 Paper 100. LSI tries to bridge this speculative gap by arguing that the "coded EPR4" graph in Figure 1 must refer to Dr. Soljanin's purported invention, and the graph could only be generated by actually implementing the invention. Yet, LSI provides no evidence beyond attorney argument for why that must be so or is even likely to be so. LSI's attorney argument is based on the assumption that, because the '95 Paper disclosed how the PR4 channel performed on a "1-2 α " curve and the EPR4 channel performed on a "1-4 α " curve, the "coded EPR4" curve in Figure 1 must represent "1-3 α ," which reflects Dr. Soljanin's purported invention. That line of reasoning is, frankly, difficult to follow, perhaps since it constitutes attorney argument on highly technical matters outside of the typical attorney's knowledge. Attorneys are not qualified to explain what " α " means, to determine whether the "coded EPR4" curve represented

1 “1-3a,” or to otherwise interpret Figure 1. LSI has not identified any expert testimony supporting
2 its attorney argument. Accordingly, there is no material dispute that LSI has failed to meet its
3 burden to show reduction to practice.

4 **2. IPR Estoppel**

5 Under § 315(e)(2), once a petitioner has obtained a final written decision on the validity of
6 a patent claim in IPR proceedings, that petitioner “may not assert [] in a civil action arising in
7 whole or in part under section 1338 of title 28 . . . that the claim is invalid on any ground that the
8 petitioner raised or reasonably could have raised during that inter partes review.” 35 U.S.C.
9 § 315(e)(2). Here, the parties agree that LSI did not raise the ’95 Paper during IPR proceedings as
10 a ground for unpatentability. Joint Statement of Undisputed Facts Regarding UMN’s Motion for
11 Summary Judgment (“JSUF I”) ¶ 18, ECF No. 310-2. They also agree that LSI was aware of and
12 had access to the ’95 Paper when it filed its IPR petition. *Id.* ¶ 20. This means that LSI
13 reasonably could have raised the ’95 Paper as grounds for invalidity during the IPR proceedings.
14 Finally, the parties agree that inventions under § 102(g) cannot be raised in IPR proceedings. *Id.*
15 ¶ 19. Thus, whether IPR estoppel applies turns on whether the § 102(g) argument that LSI raises
16 now is equivalent to an argument that LSI could have raised in IPR; namely, that the ’95 Paper
17 invalidates the claims at issue as anticipated or obvious. The Court finds that the two arguments
18 are equivalent for estoppel purposes.

19 As Dr. Soljanin testified, all technical details about her purported invention were contained
20 in the ’95 Paper. *Id.* ¶ 59; Soljanin Dep. at 65:15–66:3. In other words, Dr. Soljanin’s purported
21 invention under § 102(g) contains no functionalities, characteristics, or elements not disclosed in
22 the ’95 Paper. LSI does not dispute any of this. Consequently, anticipation and obviousness
23 arguments based on the ’95 Paper would involve the exact same substantive arguments as
24 anticipation and obviousness arguments based on the purported §102(g) invention.

25 The only potentially relevant difference between the ’95 Paper and the purported
26 invention, for anticipation and obviousness purposes, would be the priority date. LSI seizes onto
27 this difference, arguing that it could not have raised the ’95 Paper in IPR proceedings because the
28

1 '95 Paper (October 1995) postdated conception of the '601 Patent (May 1995). Opp. to UMN
 2 Mot. 15–16. Therefore, LSI says, the '95 Paper could not have been prior art. But Dr. Soljanin's
 3 purported § 102(g) invention, which has an earlier priority date than the '95 Paper, can be prior
 4 art. LSI is jousting at windmills. What matters is not the conception date of the invention
 5 disclosed by the '601 Patent but rather the priority date of the '601 Patent itself. The '601 Patent's
 6 priority date is April 5, 1996. JSUF I ¶ 5. LSI could have raised the '95 Paper as prior art during
 7 the IPR proceedings since the '95 Paper was published before April 1996. As such, LSI's
 8 anticipation and obviousness arguments based on the '95 Paper are materially indistinguishable
 9 from those based on the purported § 102(g) invention. LSI is estopped from using Dr. Soljanin's
 10 purported invention to argue invalidity.

11 **B. Inequitable Conduct**

12 “To prove inequitable conduct, a party must show that the patentee withheld material
 13 information from the PTO, and did so with the specific intent to deceive the PTO.” *Luv n' Care,*
 14 *Ltd. v. Laurain*, 98 F.4th 1081, 1096–97 (Fed. Cir. 2024). LSI's theory of inequitable conduct is
 15 that Dr. Moon and Dr. Brickner failed to disclose Dr. Soljanin as one of the inventors of the '601
 16 Patent.⁴ To succeed on that theory, LSI must be able to show that Dr. Soljanin was in fact an
 17 inventor. But it has not done so and cannot do so.

18 A joint inventor must show that her “labors were conjoined with the efforts of the named
 19 inventors.” *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1359 (Fed. Cir. 2004). Put
 20 differently, a joint inventor must have actually worked with the named inventors. The bar for
 21 establishing this requirement is not high, but at a minimum there must be evidence that some
 22 “collaboration or concerted effort occur[ed]—that is, [] the inventors ha[d] some open line of
 23 communication during or in temporal proximity to their inventive efforts.” *Id.* There is no
 24 apparent evidence of such collaboration in the record. LSI cites to its own counterclaim

25
 26 ⁴ UMN's motion for summary judgment initially addressed the argument that it was inequitable
 27 conduct for Dr. Moon and Dr. Brickner to withhold the '95 Paper from the PTO. LSI appears to
 have abandoned that theory of inequitable conduct.

1 allegations, which are (of course) not evidence. Opp. to UMN Mot. 17–18. And LSI quotes
 2 excerpts from Dr. Moon’s and Dr. Brickner’s depositions that could arguably be interpreted as
 3 conceding that the ’95 Paper disclosed claims 14 and 17 of the ’601 Patent. *Id.* at 20–21. While
 4 the deposition excerpts could be relevant to anticipation or obviousness arguments, they do not
 5 show any collaboration that Dr. Moon and Dr. Brickner had with Dr. Soljanin. If anything, the
 6 record affirmatively shows that there was no collaboration. LSI makes much of the (disputed) fact
 7 that Dr. Moon purportedly asked Dr. Soljanin if she would like to be listed as a joint inventor on
 8 the ’601 Patent.⁵ However, Dr. Soljanin testified that she was not personally acquainted with Dr.
 9 Moon prior to his supposed offer, so the two could not have collaborated beforehand. Soljanin
 10 Dep. at 84:21–85:2. Dr. Moon testified to the same. Moon Dep. at 60:16–19, ECF No. 335-6.
 11 Accordingly, LSI has failed to present a triable issue on its inequitable conduct claim.

12 * * *

13 For the reasons above, the Court **GRANTS** UMN’s motion for partial summary judgment.

14 **IV. LSI’S MOTION FOR SUMMARY JUDGMENT**

15 LSI moves for summary judgment on three issues. First, LSI seeks summary judgment of
 16 no infringement as a matter of law, including no direct, indirect, or willful infringement. Second,
 17 LSI requests a ruling that UMN is not entitled to damages as a matter of law. Third, LSI moves
 18 for summary judgment that the ’601 Patent is invalid for lack of enablement.

19 LSI is entitled to summary judgment of no infringement for use of HDDs that are not
 20 configured to use [REDACTED] when used as configured. The Court finds that LSI
 21 otherwise has not met its burden to show it is entitled to summary judgment on the other requested
 22 issues.

23

24

25⁵ As presented, LSI’s allegation makes no sense. The Court cannot think of any reason, nor has
 26 LSI provided one, explaining why Dr. Moon would offer joint inventorship to an apparent stranger
 27 at their first meeting. That said, the Court need not and does not (and cannot at this stage) resolve
 such a factual dispute—even if the Court were to assume, as LSI argues, that Dr. Moon did extend
 an invitation, there is still no evidence of collaboration.

1 **A. Infringement**

2 **1. Direct Infringement**

3 *HDDs not configured to use [REDACTED]*. The parties agree that “[u]se of HDDs
4 that are not configured to use the [REDACTED] do not directly infringe when used as
5 configured.” JSUF II ¶ 10; *see also* Opp. to LSI Mot. 1. The parties also agree that [REDACTED]
6 [REDACTED] were configured to use the [REDACTED]. JUSF II ¶ 11. Based on this agreement, LSI requests summary judgment
7 of no infringement “with respect to all SoCs sold by LSI other than those used in the [REDACTED]
8 [REDACTED].” Reply ISO LSI Mot. 1. This argument reflects a divide in the parties’
9 broader positions. As the Court understands it, UMN’s infringement theory does not necessarily
10 depend on whether any HDDs were ultimately configured [REDACTED]. It is
11 LSI’s, and its customers’, purported use [REDACTED] during the sales cycle (including
12 testing, verification, etc.) that UMN accuses, regardless of how the HDD was ultimately
13 configured. *See* Opp. to LSI Mot. 3–6. As such, summary judgment of no infringement as to all
14 SoCs sold by LSI other than those used [REDACTED] would require LSI pointing to an
15 absence of evidence supporting UMN’s theory of infringement as to those chips. LSI has not met
16 that burden. Even though it is undisputed that only those [REDACTED] were ultimately
17 “configured to use” [REDACTED], evidence in the record shows that UMN still has a viable
18 theory of infringement based on the other products from use of [REDACTED] during the sales
19 cycle—regardless of how they were ultimately “configured” when commercially available. *See,*
20 *e.g.*, McLaughlin Rep. ¶¶ 8.23–8.40; Tarver Dep. at 27:7–16, 105:15–20.

22 The Court will GRANT summary judgment on the narrow issue of no infringement for use
23 of HDDs that are not configured to use [REDACTED] when used as configured because
24 this request is unopposed. The Court otherwise DENIES LSI’s request for summary judgment of
25 no infringement “with respect to all” SoCs sold by LSI other than those used in [REDACTED]
26 [REDACTED].

27 *HDDs configured to use [REDACTED]* LSI also moves for summary judgment
28 Case No.: 18-cv-00821-EJD
ORDER ON MOTIONS FOR SUMMARY JUDGMENT

1 that even the SoCs in the [REDACTED] do not
 2 infringe. For this, LSI relies primarily on its argument presented in seeking to strike
 3 Dr. McLaughlin's report: that UMN's infringement theory is premised on a new claim
 4 construction and contradicts UMN's infringement contentions. As explained in the Court's order
 5 on the parties' motions to strike and *Daubert* motion (ECF No. 393 (the "Daubert Order")), the
 6 Court declined to strike Dr. McLaughlin's infringement theory. And for the same reasons, the
 7 Court disagrees that UMN's own contentions necessarily demonstrate non-infringement and that
 8 Dr. McLaughlin's report adopts a new construction of "recorded waveform." To recap, the Court
 9 finds persuasive UMN's argument that Dr. McLaughlin's opinion expands upon the description in
 10 UMN's Supplemental Contentions regarding when [REDACTED] do not affect a codeword
 11 generated [REDACTED]. Additionally, Dr. McLaughlin's infringement theory as articulated
 12 in his report applied the plain and ordinary meaning of "recorded waveform."⁶ The Court thus
 13 declines to disregard Dr. McLaughlin's infringement theory on this basis. On reply, LSI points to
 14 testimony from LSI's former Director of Read Channel Architecture and LSI's R&D Director who
 15 both stated that [REDACTED] increases the j constraint to [REDACTED] is on.
 16 See Reply ISO LSI Mot. 5 (quoting Wilson Dep. at 256:4–8, ECF No. 315-11; Yang Dep. at
 17 52:10–53:16). This testimony supports LSI's noninfringement theory and directly contradicts
 18 Dr. McLaughlin's opinion that, even when [REDACTED], the j constraint [REDACTED]
 19 [REDACTED] is on because [REDACTED] do not affect the codewords. LSI's cited
 20 testimony underscores the genuine dispute of material fact regarding the j constraint value when
 21 for [REDACTED] is enabled.

22 Separate from the attacks on Dr. McLaughlin's report, LSI argues that UMN's
 23 infringement theory still fails because UMN lacks proof that (1) "any HDDs configured with the
 24 [REDACTED] were ever used in the United States"; and (2) "any simulation of an HDD
 25 _____

26 ⁶ LSI contends on reply that the Court "must decide which interpretation [of 'recorded waveform']
 27 is correct" and raises several arguments for why its interpretation should be adopted over UMN's.
 28 Reply ISO LSI Mot. 8–12. At this stage, the Court disagrees that it must resolve any claim
 construction dispute to rule on LSI's motion for summary judgment.

1 configured to use [REDACTED] was ever performed in the United States with the [REDACTED]
2 [REDACTED] disabled.” LSI Mot. 12.

3 This argument again relies on the parties’ differing views of infringement. It is LSI’s, and
4 its customers’, purported use of the [REDACTED] during the sales cycle that UMN accuses. So
5 whether any HDDs ultimately configured with the [REDACTED] were sold in the United
6 States is immaterial to UMN’s infringement theory. What matters—and what would warrant
7 summary judgment of noninfringement for LSI on this issue—is if UMN lacks proof that LSI and
8 its customers *used* the [REDACTED] in the United States.

9 LSI has not met its burden on this issue. UMN identified several pieces of evidence
10 showing use of the Asserted Claims in the United States through testing of [REDACTED] code.
11 This includes testimony from LSI’s Director of Read Channel Architecture, Bruce Wilson,
12 discussing validation and design work with customers in California. *See, e.g.*, Wilson Dep. at
13 133:18–134:25, ECF No. 333-7 (discussing interactions with customers in Minnesota, Colorado,
14 and California). UMN also identified testimony from a member of Dr. Wilson’s team who
15 discussed [REDACTED] in California and Colorado. *See* Yang Dep. at 72:20–
16 73:11 (testifying that LSI performs [REDACTED] “[i]n California, Colorado, or
17 Shanghai, at least” and LSI’s customers perform [REDACTED] “[i]n Minnesota,
18 in California, in Asia”); *id.* at 97:14–16 (“Q. So, would the [REDACTED] occur in both
19 California and China? A. Yes.”). This evidence supports finding use of [REDACTED] in the
20 United States.

21 LSI does not address this evidence. Instead, it doubles down on its challenge to UMN’s
22 broader theory of infringement and seems to abandon its argument of noninfringement based on
23 no use in the United States. *See* Reply 1–4. The Court addresses LSI’s arguments regarding
24 UMN’s request for damages below.

25 At this stage, LSI has not met its burden to show it is entitled to summary judgment of no
26 direct infringement for all HDDs and simulators configured to use [REDACTED].

1 **2. Indirect Infringement**

2 Liability for indirect infringement arises through the existence of direct infringement.
3 *Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1272 (Fed. Cir. 2004). To
4 establish indirect infringement, a patent owner can assert active inducement of
5 infringement or contributory infringement. *See* 35 U.S.C. § 271(b)–(c). UMN brings claims for
6 indirect infringement based on—and LSI moves for summary judgment in its favor on—both.

7 ***Induced infringement.*** Pursuant to 35 U.S.C. § 271(b), “whoever actively induces
8 infringement of a patent shall be liable as an infringer.” In order to succeed on a claim of
9 inducement, UMN must show “first that there has been direct infringement, and second that the
10 alleged infringer knowingly induced infringement and possessed specific intent to encourage
11 another’s infringement.” *Enplas Display Device Corp. v. Seoul Semiconductor Co., Ltd.*, 909 F.3d
12 398, 407 (Fed. Cir. 2018) (citation omitted). As a result, “liability for inducing infringement
13 attaches only if the defendant knew of the patent.” *Commil USA, LLC v. Cisco Sys., Inc.*, 575 U.S.
14 632, 639 (2015). “The intent element requires knowledge that the induced acts constitute patent
15 infringement, which can be established by a proper finding of willful blindness.” *Roche
16 Diagnostics Corp. v. Meso Scale Diagnostics, LLC*, 30 F.4th 1109, 1118 (Fed. Cir. 2022)
17 (quotations omitted).

18 LSI seeks summary judgment of no induced infringement by LSI of claims 14 and 17 first
19 because UMN has not shown direct infringement. Because the Court granted summary judgment
20 of no infringement for use of HDDs that are not configured to use the [REDACTED] when
21 used as configured, the Court will in turn GRANT summary judgment of no indirect infringement
22 based on the same.

23 As for the indirect infringement claims stemming from the unresolved direct infringement
24 conduct, LSI argues summary judgment is proper for three reasons: (1) UMN cannot show pre-suit
25 knowledge of the ’601 Patent or that it was willfully blind to infringement, (2) LSI did not
26 knowingly induce infringement, and (3) LSI did not know whether its customers imported any
27 [REDACTED] HDDs into the United States. LSI Mot. 14–17.

1 Pre-suit knowledge or willful blindness. LSI avers that UMN cannot show LSI had actual
2 knowledge of the '601 Patent (and alleged infringement) or that LSI was willfully blind to the
3 existence of the '601 Patent (and alleged infringement). UMN appears to not dispute it lacks
4 evidence that LSI knew the '601 Patent existed. Rather, its indirect infringement theory relies on
5 willful blindness.

6 Willful blindness occurs when parties “deliberately shield[] themselves from clear
7 evidence of critical facts that are strongly suggested by the circumstances.” *Global-Tech*
8 *Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 766 (2011). This standard is higher than mere
9 negligence or recklessness. *Id.* at 769. Demonstrating willful blindness requires that “(1) the
10 defendant must subjectively believe that there is a high probability that a fact exists and (2) the
11 defendant must take deliberate actions to avoid learning of that fact.” *Id.*

12 Here, record evidence demonstrates a genuine dispute of material fact as to whether LSI
13 was willfully blind. For instance, UMN identifies licensing discussions between the parties in
14 2013 from which a reasonably juror could infer that LSI was willfully blind to the existence of the
15 '601 Patent and potential infringement. On March 5, 2013, Dr. Moon initiated the discussions in
16 an email to Dr. Yuan Xing Lee, a member of team that developed of LSI’s read channel and SoC
17 architecture, inquiring whether “LSI would be open to a friendly conversation about [UMN]
18 technology commercialization.” JSUF II ¶¶ 28, 34. Dr. Lee responded two days later, copying
19 LSI’s Senior IP Counsel, Ryan Phillips, as the proper contact person “for future follow-up.” *Id.*
20 ¶ 35. On April 9, 2013, Dale Nugent from UMN’s Office for Technology Commercialization
21 emailed Mr. Phillips writing: “I am contacting you regarding technology developed by Dr. Jae
22 Moon while he was at the University of Minnesota. We believe this should be of significant
23 interest to LSI and wish to open additional conversation.” *Id.* ¶ 37. Following the email
24 exchanges, Mr. Nugent and Mr. Phillips spoke by phone (*id.* ¶ 38), and Mr. Nugent testified that
25 he told Mr. Phillips that UMN “was under the belief that LSI was utilizing the [Moon]
26 technology.” Nugent Dep. at 61:4–65:25. Mr. Nugent also testified he recalled Mr. Phillips
27 having a “very gruff response” and that LSI would not engage in licensing discussing without
28

1 UMN first providing “notice.” *Id.* at 10–25.

2 Construing these facts in the light most favorable to UMN, a reasonable juror faced with
3 this evidence could conclude that Mr. Phillips, following the emails and conversations with UMN,
4 understood a patent existed and took deliberate action to avoid confirming its existence and LSI’s
5 infringement. LSI argues that Mr. Phillips’ willingness to meet with UMN’s representative who
6 never mentioned the ’601 Patent or accused LSI of infringement shows that UMN is to blame for
7 LSI’s lack of knowledge. On this point, however, Mr. Nugent testified that his practice is to be
8 “very careful” in conversations with potential licensees about using the term “infringement”
9 because “that tended to put a chill on any conversation.” Nugent Dep. at 64:14–22. A reasonable
10 juror could find Mr. Nugent’s deposition testimony not credible or choose to credit LSI’s version
11 of the facts: that LSI had no duty to investigate even after the conversations with Mr. Nugent. But
12 determining whether LSI was willfully blind under these circumstances requires weighing the
13 evidence. Accordingly, summary judgment is not appropriate.

14 The evidence regarding licensing discussions standing alone is sufficient for a reasonable
15 juror to infer willful blindness. UMN has identified additional evidence it contends further
16 support this inference. *See* UMN Opp. to LSI Mot. 15–18. Although Judge Wright previously
17 rejected certain theories of willful blindness as “implausible” at the motion to dismiss stage, that
18 order did not foreclose a theory of willful blindness based on other theories UMN now has
19 evidence to support, for example, evidence that LSI may have discouraged its engineers from
20 reading third party patents in the course of their work unless specifically instructed to. *See* Order
21 Denying Motion to Dismiss 7–11, ECF No. 144; *see also* Wilson Dep. at 245:12–18.

22 Knowing inducement or specific intent. LSI next argues UMN cannot show LSI
23 knowingly induced infringement or that LSI possessed specific intent to encourage another’s
24 infringement. LSI Mot. 15. Regarding knowing inducement, LSI contends that the table from its
25 technical specifications (also cited in UMN’s infringement contentions) demonstrates that all LSI
26 knew was that when its SoCs are configured to use the allegedly infringing [REDACTED] with
27 the [REDACTED], the resulting j constraint [REDACTED]—an amount that does not meet claim

14 and 17. *Id.* LSI also argues that it “knew that its customers never sold HDDs where the [REDACTED]
[REDACTED].” *Id.* Thus, LSI “reasonably believed that use of its chips does not impose
‘j’ constraint less than 10 as required by” claims 14 and 17. *Id.*

Regardless of what the table does or does not show, the Court is not convinced it negates any showing of knowing inducement. The knowledge requirement can be met by proof of willful blindness. *See Roche*, 30 F.4th at 1118 (the intent element “can be established by a proper finding of willful blindness”). LSI has not identified any authority supporting its suggestion that a showing of willful blindness requires being willfully blind of the specific limitations of the claims.⁷ Indeed, willful blindness occurs when an accused infringer deliberately avoids learning more about the claims. For the reasons stated above, UMN has presented sufficient evidence for a reasonable juror to infer LSI was willfully blind to the existence of the ’601 patent and its infringement of the same.

But even if the record contains sufficient evidence to support the requisite knowledge (via a willful blindness theory or not), the Court must still decide whether UMN has sufficient evidence showing some affirmative act to induce infringement. *See Enplas*, 909 F.3d at 407. To show this, UMN points to undisputed evidence in the record that LSI’s field application engineers work directly with LSI customers to provide technical support in using LSI’s SoC (JSUF II ¶ 40) and the product specifications for the Accused Read Channels that LSI provides to customers includes instructions on how to configure the channels to select [REDACTED] (*id.* at ¶ 41). This evidence is sufficient for a reasonable juror to infer that LSI took an affirmative act to induce its customers to infringe using [REDACTED].

Knowledge of importation. Lastly, LSI argues UMN cannot show that LSI knew that its customers were importing into the United States either of [REDACTED] that had LSI chips

⁷ LSI does cite *Commil*, 575 U.S. at 642, where the Supreme Court held that *Global-Tech*’s induced infringement standard “requires proof the defendant knew the acts were infringing.” The Federal Circuit has since confirmed that “*Commil*, in reaffirming *Global-Tech*, also necessarily reaffirmed that willful blindness can satisfy the knowledge requirement for active inducement under § 271(b) (and for contributory infringement under § 271(c)), even in the absence of actual knowledge.” *Warsaw Orthopedic, Inc. v. NuVasive, Inc.*, 824 F.3d 1344, 1347 (Fed. Cir. 2016).

1 configured with [REDACTED]. LSI Mot. 17. UMN responds that those HDDs include some sold
2 and manufactured by Western Digital, which is headquartered in California, and which had
3 “significant sales in the relevant period.” UMN Opp. to LSI Mot. 15, n.3. UMN argues that this
4 circumstantial evidence shows LSI “in fact was aware of the existence of HDD end users for the
5 relevant HDD generations in the U.S.” *Id.*

6 Here, lack of knowledge that customers ultimately imported the relevant products with
7 HDDs into the United States still does not preclude a finding of induced infringement. UMN’s
8 theory of induced infringement, mirroring its theory of direct infringement, is that LSI encouraged
9 its customers to use [REDACTED] during the sales cycle in their U.S. facilities.⁸ Thus, it is
10 knowledge that customers used the infringing code in the United States that matters. As explained
11 above, UMN has adduced evidence regarding this knowledge.

12 LSI’s motion for summary judgment of no induced infringement is therefore DENIED.

13 **Contributory Infringement.** A party is liable for contributory infringement under § 271(c)
14 if: (1) “there is direct infringement,” (2) “the accused infringer had knowledge of the patent,”
15 (3) “the component has no substantial noninfringing uses,” and (4) “the component is a material
16 part of the invention.” *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1326 (Fed. Cir. 2010). Section
17 271(c) “require[s] a showing that the alleged contributory infringer knew that the combination for
18 which his component was especially designed was both patented and infringing.” *Aro Mfg. Co. v.*
19 *Convertible Top Replacement Co.*, 377 U.S. 476, 488 (1964).

20 LSI argues it is entitled to summary judgment of no contributory infringement because
21 UMN cannot prove LSI knowingly contributed to infringement, and LSI’s chips have substantial
22 noninfringing uses. Mot. 18–19. On the first point, as LSI acknowledges, the knowledge

23
24 ⁸ This theory of infringement distinguishes this case from *Viavi Sols. Inc. v. Platinum Optics Tech. Inc.*, 698 F. Supp. 3d 1145 (N.D. Cal. 2023), wherein this Court granted summary judgment of no induced infringement where the patentee lacked sufficient evidence from which a jury could infer that defendant possessed the specific intent to induce infringement. In that case, the patentee alleged defendant infringed by making and selling optical filters which included the patented technology. Unlike here, the asserted patents did not involve method claims, and the patentee did not allege infringement based on use of the technology in the United States.
25 Case No.: 18-cv-00821-EJD
26
27
28

1 requirement is the same under § 271(c) and § 271 (b). Because the Court found that genuine
2 disputes of material facts exist regarding whether LSI was willfully blind as to induced
3 infringement, the same is true in the context of contributory infringement.

4 Next, LSI argues that UMN cannot show that LSI's chips are "not a staple or commodity
5 of commerce suitable for substantial noninfringing use." LSI Mot. 19. This is because LSI's
6 customers choose which [REDACTED] to use, and the [REDACTED] can be configured—and
7 indeed *was* often configured—in multiple ways that do not infringe, including a selection of the
8 [REDACTED]. *Id.* (citing JSUF II ¶ 4, 5, 8, 26).

9 Both parties argue *Fujitsu* supports their side. The "component" at issue in that case was
10 "the specific hardware and software that performs fragmentation." *Fujitsu*, 620 F.3d at 1330. The
11 Federal Circuit, in analyzing contributory infringement, explained that "the fragmentation
12 functions of the accused products" were "separate and distinct" features that "must [be] treat[ed]
13 separately in analyzing contributory infringement." *Id.* at 1330–31. The court rejected
14 defendant's argument that, because a user could turn off the infringing features, there were
15 substantial noninfringing uses. Because it was undisputed that, "when activated, the product is
16 infringing," the Federal Circuit concluded that the fragmentation software did not have substantial
17 noninfringing uses. *Id.* at 1331.

18 Here, LSI argues that "LSI's chips" have substantial noninfringing uses, but the proper
19 framing under *Fujitsu* is whether the accused *feature*—[REDACTED]—when selected,
20 results in an infringing Accused Read Channel. The answer to that question is yes, under UMN's
21 infringement theory. LSI argues that the Accused Read Channels can be used in a noninfringing
22 way when the [REDACTED] is not turned off. Reply ISO LSI Mot. 14. But the "Accused Read
23 Channels" are themselves treated as an Accused Product. *See* McLaughlin Rep. ¶ 4.2 ("The
24 Accused Products include both Accused Read Channels and Accused Simulators"). The [REDACTED]
25 [REDACTED] is a "separate and distinct" feature from the [REDACTED] of a noninfringing rate,
26 such as [REDACTED], and the contributory infringement must be analyzed "based on this separate
27 feature, rather than the entire [Accused Read Channels]." *Fujitsu*, 620 F.3d at 1331; *see also*

1 *PersonalWeb Techs. LLC v. Int'l Bus. Machines Corp.*, No. 16-CV-01266-EJD, 2017 WL
2 2180980, at *19 (N.D. Cal. May 18, 2017) (“The proper question under § 271(c) is whether there
3 are non-infringing uses for the accused feature [], not the multi-featured product as a whole[]”).
4 Because LSI has not shown the [REDACTED] has noninfringing uses when enabled, it is not
5 entitled to summary judgment of no contributory infringement.

6 **B. Willful Infringement**

7 LSI moves for summary judgment of no willful infringement of the Asserted Claims
8 because UMN cannot show that LSI knew of the existence of the ‘601 Patent before UMN filed its
9 complaint, and LSI did not know it was infringing. LSI Mot. 20. For reasons stated above in the
10 context of induced infringement (*see supra* Section IV(A)(2)), evidence in the record could
11 support a finding that LSI was willfully blind on both fronts. LSI’s request for summary judgment
12 of no willful infringement is therefore DENIED for the same reasons. *See Roche*, 30 F.4th at 1119
13 (“In some respects, the intent standard for inducement is akin to the one for willfulness, as both
14 rest on the subjective intent of the accused infringer.”).

15 **C. Damages**

16 LSI argues UMN is not entitled to any damages as a matter of law. LSI’s arguments on
17 this issue are functionally identical to those raised in its motion to exclude the damages opinion of
18 Ms. Lawton. *See* Mot. to Exclude Lawton, ECF No. 317. In denying LSI’s request to exclude
19 Ms. Lawton’s royalty base for failure to parse out noninfringing products, the Court evaluated
20 authority and arguments LSI relies now. *See* Daubert Order 10–14 (addressing *Niazi*, *Cardiac*
21 *Pacemakers*, *CMU*, *Brumfield*, and *Synopsys*, among others).

22 The Court adopts its opinion as stated in the Daubert Order and accordingly DENIES
23 LSI’s motion for summary judgment that all LSI SoCs not configured to use [REDACTED]
24 option must be excluded from the royalty base used to calculate damages in this case.⁹

25 _____
26 ⁹ The Court expresses no opinion regarding whether UMN has established the requisite causal
27 connection between sales of noninfringing products and the alleged infringement required for
those sales to contribute to the damages calculation. *See* Daubert Order 14 (“There remains the
factual question of whether UMN has shown the necessary causation to include noninfringing
28 Case No.: 18-cv-00821-EJD

1 **D. Invalidity**

2 “Because patents are presumed valid, ‘a moving party seeking to invalidate a patent at
3 summary judgment must submit such clear and convincing evidence of facts underlying invalidity
4 that no reasonable jury could find otherwise.’” *TriMed, Inc. v. Stryker Corp.*, 608 F.3d 1333,
5 1340 (Fed. Cir. 2010) (quoting *SRAM Corp. v. AD-II Eng’g, Inc.*, 465 F.3d 1351, 1357 (Fed. Cir.
6 2006)).

7 A valid patent must include a specification that contains a written description of
8 the invention, and of the manner and process of making and using it, in such full,
9 clear, concise, and exact terms as to enable any person skilled in the art to which
it pertains, or with which it is most nearly connected, to make and use the same,
and shall set forth the best mode contemplated by the inventor or joint inventor of
carrying out the invention.

10 35 U.S.C. § 112(a). The Federal Circuit has interpreted § 112(a) as containing both a “written
11 description” requirement and an “enablement” requirement. *Ariad Pharms., Inc. v. Eli Lilly &*
12 *Co.*, 598 F.3d 1336, 1344 (Fed. Cir. 2010). LSI argues that claims 14 and 17 fail the latter
13 requirement.

14 The Supreme Court has stated that “the specification must enable the full scope of the
15 invention as defined by its claims[,]” allowing for “a reasonable amount of experimentation.”
16 *Amgen Inc. v. Sanofi*, 598 U.S. 594, 610–12 (2023). Put differently, a patent specification must
17 “teach those in the art to make and use the invention without undue experimentation.” *In re*
18 *Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). “Whether undue experimentation is needed is not a
19 single, simple factual determination, but rather is a conclusion reached by weighing many factual
20 considerations.” *Id.* Courts consider eight factors—the *Wands* factors—when assessing whether a
21 patent meets the enablement requirement. These factors are: “(1) the quantity of experimentation
22 necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of
23 working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative
24 skills of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of
25 the claims.” *Id.*

26
27 products in the royalty base.”).

28 Case No.: 18-cv-00821-EJD

ORDER ON MOTIONS FOR SUMMARY JUDGMENT

1 LSI advances two arguments to support its contention that claims 14 and 17 are invalid due
2 to lack of enablement. In terms of the *Wands* factors listed above, LSI asserts lack of enablement
3 due to breadth of the claims and the amount of direction or guidance presented. Though it may
4 not be necessary to explore each *Wands* factor in depth, an enablement analysis involves balancing
5 of the relevant factors. *See Wands*, 858 F.2d at 737 (noting that the test for enablement is “not
6 merely quantitative” and that the eight-factor test involves “weighing many factual
7 considerations”). Accordingly, though LSI only focuses on certain *Wands* factors to support its
8 motion for summary judgment, the Court will consider additional *Wands* factors to properly assess
9 whether LSI is entitled to summary judgment on this basis.

10 *First*, as to the breadth, the claims cover MTR codes of every code rate up to capacity,
11 where j is at least equal to and less than 10. The “capacity,” according to Dr. Moon, is the
12 maximum theoretical code rate for given j and k constraints. Moon Dep. at 44:10–45:6. UMN’s
13 expert counters that claims 14 and 17 “do not require that the MTR code be a block code, so a
14 POSITA would understand that other types of codes, such as state-dependent codes constructed
15 via the state-splitting algorithm, could be used.” McLaughlin Rebuttal Rep. ¶ 8.16, ECF No. 333-
16 21.

17 Second, regarding the relative level of skill of those in the art, LSI’s technical expert
18 opines that a POSITA “would have had at least an undergraduate degree in electrical engineering
19 or similar field, and three or more years of industry experience in the field of read channel
20 technology.” Koralek Rep. ¶ 21, ECF No. 315-18. In Dr. Koralek’s view, the experience would
21 be in “read channel technology” (*id.*), but in Dr. McLaughlin’s view, the experience would have
22 “specialization in data coding and detection techniques used in connection with reading data from
23 various storage media.” McLaughlin Rebuttal Rep. ¶ 5.5 (explaining this experience is
24 “essentially read channel technology”). McLaughlin also opines that a POSITA would have
25 studied and been familiar with traditional data coding and detection techniques and devices
26 including “RLL codes, peak detectors, and sequence detectors, such as Viterbi detectors.” *Id.*
27 Considering this level of skill, Dr. McLaughlin asserts that the guidance in the specification (*e.g.*,

1 the explanation that state-dependent codes can be used and the example of a finite-state transition
2 diagram for an MTR code) is sufficient because the POSITA would know “that the state-splitting
3 algorithm could be used to generate a state-dependent MTR code.” *Id.* ¶ 8.16 (ii).

4 Dr. McLaughlin also opines that a POSITA would know “that the state-splitting algorithm can be
5 used to generate codes at rates up to capacity, so the POSITA would know how, in light of the
6 ’601 Patent’s disclosure, to construct MTR codes at rates up to capacity.” *Id.*

7 Next, regarding the presence or absence of working examples, Dr. McLaughlin opines that
8 the ’601 Patent both explains that state-dependent codes could be used and provides an explicit
9 example of a block code. *Id.* ¶¶ 8.15 (citing ’601 Patent, col. 6:1–55); 8.16 (vi). The state-
10 splitting algorithm was described in the ACH 1983 paper, and McLaughlin contends that ta
11 POSITA would have known that “the state-splitting algorithm can be used to construct a
12 constrained state-dependent code, from a finite-state transition diagram for the applicable
13 constraints, at any rate up to capacity.” *Id.* ¶ 8.15. Although the ACH 1983 paper was not cited in
14 the specification, Dr. McLaughlin contends that a POSITA, with the relevant experience and
15 knowledge, would have known and been familiar with the state-splitting algorithm and thus,
16 would know how to construct state-dependent MTR codes at any rate up to capacity. *Id.*

17 The Court finds that LSI has not met its burden to establish an absence of genuine disputes
18 of material fact to warrant summary judgment of invalidity for lack of enablement. As an initial
19 matter, LSI suggests that any disagreements among the experts is irrelevant “because enablement
20 is a question of law.” Reply ISO LSI Mot. 15 (quoting *MagSil Corp. v. Hitachi Glob. Storage*
21 *Techs., Inc.*, 687 F.3d 1377, 1380 (Fed. Cir. 2012)). But the full quote from *MagSil* confirms that
22 “enablement is a question of law *based on underlying factual findings*.” *Id.* (citing *In re Wands*,
23 858 F.2d at 735). Courts routinely deny summary judgment of enablement where, as here, the
24 underlying factual findings are genuinely disputed. A reasonable fact finder could determine that
25 UMN overstates the need for additional examples beyond the block codes. It could also find
26 credible Dr. McLaughlin’s opinion that the state-splitting and similar articles provide a
27 “cookbook” that one of ordinary skill could use to practice the full scope of the claims. At the

1 same time, a factfinder could determine that a POSITA would not be able to create state-
2 dependent MTR codes without undue experimentation, given the state of the art.

3 Based on the opposing expert analyses, the Court concludes that there are genuine disputes
4 of material fact that preclude granting summary judgment on lack of enablement.

5 **V. CONCLUSION**

6 For the foregoing reasons, the Court rules as follows:

7 UMN's motion for partial summary judgment is **GRANTED**.

8 LSI's motion for partial summary judgment is **GRANTED IN PART** and **DENIED IN**
9 **PART**. LSI is entitled to summary judgment of (1) no infringement for use of HDDs that are not
10 configured to use [REDACTED] when used as configured, (2) no indirect infringement
11 based on the same. LSI's motion is otherwise denied.

12
13 **IT IS SO ORDERED.**

14 Dated: March 3, 2025

15
16
17 
18
19
20
21
22
23
24
25
26
27
28

EDWARD J. DAVILA
United States District Judge